VIN STEW- Melvin Butte Forest Management Project (MCGO rxs)

Silviculture Treatment Specifications and Implementation Guidelines
Stewardship Imp Units 5-16 and 18,19
Updated 10/20/2016

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Prescription and Marking Guides herein refer to those units identified in the Melvin Butte EA as "Mixed Conifer Group Openings".

Northwest Forest Plan- Matrix; Deschutes LRMP: See table 1

Silvicultural Objectives

Silvicultural objectives for these stands/ units were developed by comparing the description of the current stand conditions with the desired future condition from the Melvin Butte EA decision document (as well as guiding documents including the Deschutes Forest Plan, Northwest Forest Plan, Whychus Watershed Analysis) determining what changes to the vegetation need to occur to bring stand conditions closer to the desired future condition. Silvicultural objectives will be used to determine specific management actions needed.

Desired Future Condition

The mixed conifer landscape is a mosaic of varying patch sizes and seral stages and formed from influences of adjacent areas, site productivity and disturbance regimes. Stands contain a range of small, medium and large trees. Ponderosa pine is the dominant overstory "anchor" species with sparse understories of both shade tolerant and intolerant species. Low to mixed intensity fire return intervals are 0-50 years and help maintain seral species and prevent the dominance of climax species in most stands. Snag and down log levels would be consistent with historic levels and standards in the Northwest Forest Plan. Fire severities within mixed conifer PAGs would encompass the range from low to high severities with high severity consisting < 10% of the burn area occurring as small patches distributed throughout the burn area (departure from Watershed Analysis).

Mixed Conifer Dry – Generally these areas are one or two storied stands with 20% to 40% canopy closure. Understory trees and shrubs are unevenly distributed and a mix of shade tolerant and intolerant species. Grand/white fir does not comprise more than 20% of the stand. Snags present are sufficient to meet 100% MPP for wildlife focal species (usually 4 to 7 per acre). Down logs are scattered throughout the stand. Small openings exist, generally less than 10 acres in size, with 10 to 15 trees per acre (primarily ponderosa pine) and with large snags present.

Mixed Conifer Wet – These plant associations occur mostly in moister ecotones such as riparian bottoms, higher elevations, north slopes, or other areas with fire return intervals at the upper end of 0-50 years. These stands are multi-storied, with 30%-60% canopy closure, and include a balance between grand/white fir and "anchor" ponderosa pine. Understory trees, which are mostly shade tolerant species, are multi-aged, and well distributed. Trees (either ponderosa pine or grand/white fir) may occur as dense thickets when pioneering an opening created by insects/disease, fire or windthrow. Due to surrounding area influences, grand/ white fir does not comprise more than 30% of the area over 30 years. Snags and large down logs provide a significant amount of structural complexity.

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Table 1. Biotic and Abiotic characteristics of selected MCGO stands- BA and TPA is from Lidar tree points

	Unit 5	**Unit 6**	**Unit 7**	**Unit 8**	**Unit 9**	**Unit 10**	**Unit 11**	**Unit 12**	**Unit 13**	**Unit 14**	**Unit 15**	**Unit 16**	**Unit 18**	**Unit 19**
EA Unit crosswalk	**47**	**57**	**57**	**57**	**57**	**46**	**50**	**57**	**56**	**56**	**52**	**49**	**51**	**51/53**
Acres:	10	73	45	123	102	9	51	34	56	31	162	17	24	19
Deschutes LRMP	M-18	M-18	M-18	M-18	M-18	M-18	M-18	M-18	M-9/18	M-18	M-9/18	M-9	M-18	M-18
Plant Association	CWS113	CWS113	CWS113	CWS113	CWS112	CWS112	CWS112	CWS113	CWS113	CWS113	CWS113	CWS113	CWS 1-12	CWS 1-12
Aspect:	24	354	67	133	101	11	17	0	109	41	0	11	62	21
Slope (%):	12	12	7	15	16	19	22	22	13	5	15	19	21	24
Elevation (ft):	5289	5404	5528	5400	5249	4869	5194	5607	6056	5807	5728	5427	5367	5322
Total Trees Per Acre:	**334**	**273**	**353**	**213**	**243**	**260**	**260**	**240**	**294**	**234**	**326**	**379**	**235**	**347**
0-5in	161	113	102	73	83	114	107	85	109	77	121	94	69	218
5-9in	97	89	164	59	79	372	11	86	125	95	121	160	111	95
9-21in	70	61	86	69	74	65	70	65	59	60	80	120	54	34
21+in	6	10	0	12	8	18	20	4	1	1	3	6	0	0
Total Basal Area (sqft):	**120**	**126**	**120**	**135**	**123**	**161**	**174**	**104**	**96**	**82**	**125**	**179**	**75**	**63**
0-5in	9	8	7	4	5	6	6	5	7	5	8	6	5	15
5-9in	25	23	45	16	22	16	17	24	33	26	33	45	30	23
9-21in	66	63	66	77	70	79	83	64	53	49	74	108	39	25
21+in	21	33	1	38	27	60	69	12	2	2	9	20	0	0

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SDI:	**239**	**239**	**241**	**240**	**229**	**288**	**306**	**200**	**195**	**164**	**245**	**338**	**152**	**143**
BA weighted QMD (in):	8.1	9.2	7.9	10.8	9.6	10.7	11.1	8.9	7.7	8	8.4	9.3	7.6	5.8
Tree spp. present	ABCO PICO PIPO	ABCO PICO PIPO	ABCO PICO PIPO	ABCO PICO PIPO	ABCO PICO PIPO	ABCO PICO PIPO	ABCO PICO PIPO	ABCO PICO PIPO	ABCO PICO PIPO	ABCO PICO PIPO	ABCO PICO PIPO	ABCO PICO PIPO (few)	ABCO PICO PIPO	ABCO PICO PIPO

Saw Log- Marking Guide

Common elements/ parameters across all units (whether in Group Openings (GOs) areas or not)

1) No marking/ cutting of ponderosa pine
2) No marking/ cutting of Doug-fir, 5 needle pines, mountain hemlock (if discovered)
3) Diameter restriction of all trees ≥21”DBH will occur in areas that contain fragments.
4) Maintain all snags

Common elements/ parameters across all units (outside of GOs)

5) With remaining white fir, lodgepole pine- always choose diseased, low vigor, poor form trees for removal first within the bounds of BA ranges (table below).
6) Species preference (white fir, lodgepole pine) will be equal AFTER #5 is met
7) White fir, lodgepole pine, diameter limit- No marking/ cutting of any tree ≥25”dbh. 25”dbh is used in order to maintain any old growth trees and maintain additional trees in the large tree size classes.
8) Remove all white fir, lodgepole pine (within diameter limits) from within 25ft of any ≥12” ponderosa pine and ≥9”DBH Doug-fir.
9) Maintain a spatial pattern to reflect a random arrangement with clumps and individuals. Retain clumps and naturally occurring structure where it exists.

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Unit 19 specific consideration-

Unit 19 is comprised of both a 2nd growth plantation and a un-evenaged mixed conifer stand. Generally, the plantation begins at the road and ends at the toe slope. Within the plantation, thinning of ponderosa pine and lodgepole (and white fir- if present) will occur and outside of this plantation thinning will NOT include ponderosa pine. In both cases the preferred species is ponderosa pine.

1) In the 2nd growth plantation thin all lodgepole pine (and white fir- if present). After this occurs, thinning will occur on ponderosa pine, generally from below, favoring the healthiest ponderosa pine and allowing for variable densities within a 40-60 BA range. In some locations the action of removing all lodgepole may drop BA range below lower range of 40BA- this is acceptable.
2) In the remainder of the stand, thinning will follow the common elements above, two paragraphs below and information described in Table 2.

Table 2. Unit by Unit basal area target ranges and other considerations

<table>
<tr><th>Imp Unit #</th><th>Prescribed sqft BA range (outside of Group openings and ≥12”DBH ponderosa pine and ≥9”DBH Doug-fir)</th><th>Non-saw thinning 5-9”DBH</th><th>Specific considerations</th><th colspan="2">Common Elements</th></tr>
<tr><td>5</td><td rowspan="11">80-120</td><td>Yes</td><td></td><td rowspan="12">Outside of group openings- use the lower range of the basal area target in disease centers including white fir mistletoe or root rot pockets and upper range in areas north aspects >20%slope – (identified below).</td><td rowspan="12">25’spacing off of any ponderosa pine ≥12”DBH or ≥9”DBH Doug-fir (if found)</td></tr>
<tr><td>6</td><td>Yes</td><td>100ft no thin buffer near Cooper’s hawk nest or alternate nest. At least 300ft distance from any GO.</td></tr>
<tr><td>7</td><td>Yes</td><td></td></tr>
<tr><td>8</td><td>Yes</td><td></td></tr>
<tr><td>9</td><td>Yes</td><td></td></tr>
<tr><td>10</td><td>Yes</td><td></td></tr>
<tr><td>11</td><td>Yes</td><td></td></tr>
<tr><td>12</td><td>Yes</td><td></td></tr>
<tr><td>13</td><td>Yes</td><td></td></tr>
<tr><td>14</td><td>Yes</td><td></td></tr>
<tr><td>15</td><td>Yes</td><td></td></tr>
<tr><td>16</td><td>100-120</td><td>Yes</td><td>Within scenic corridor- do not create sharp/long</td></tr>
</table>

			edges visible from scenic corridor		
18	80-100	Yes			
19	40-60 in plantation and 60-80 outside	Plantation No/ elsewhere Yes	No group openings in 2nd growth plantation		

Group Openings (GO) Prescription

Predetermined group opening locations have been designated. GOs sizes range from 1 – 2 acres. Irregular shapes and positioning occurred and are arranged to blend in with adjoining stands or view points and in order to meet MA-9 or MA-18 standards and guidelines. Within these group openings removal of all* saw and non-saw white fir, lodgepole pine and hemlock shall occur and retention of all ponderosa pine of any size and condition. ***** The exception to this (part of common elements of all areas stated above) are those identified areas that contain large tree fragments- when fragments overlap with group openings all trees ≥21"DBH will be retained. In addition, to the retention of fragments by 21"dbh rule in GOs, any GOs that contain individual old growth fir trees (do not qualify as a fragment) shall be retained. Old growth determination will utilize qualitative physical characters including, deep furrowed bark, high live branches and darker colored bark. These trees may be >150 years old and should be retained. Due to their relative short lifespan (as compared to ponderosa pine) these trees will often times indicate stem/ heart rot from Indian Paint fungus and/or frost cracks.

Maintain at least 100ft from one created opening to the next created opening. Openings may be placed next to a former opening from a previous entry. Unit 6 shall not have any GO placed closer than 300ft from the identified Cooper's hawk nest or alternate nest tree with a minimum residual BA or 120sqft/ acre in this zone.

Thinning (outside of GOs)

Outside of GO areas, thinning will occur throughout the diameter range (9-25"dbh) based on list of "common elements" stated above. Generally it will range from 80-120 sqft/acre. However actual ranges will be affected by the below parameters, stand conditions and specific ranges stipulated in table 2. In disease centers including ABCO and/or PICO dwarf mistletoe shoot for low end of range (80-100 BA) while in areas free of disease or productive north aspects (slopes >20%) relax range to 120 BA. See figure below and GIS path→ **T:\FS\NFS\Deschutes\Project\SIS\impMelvinButte2015\GIS\LayerFile\120sqft_areas.lyr** for unit specific areas.

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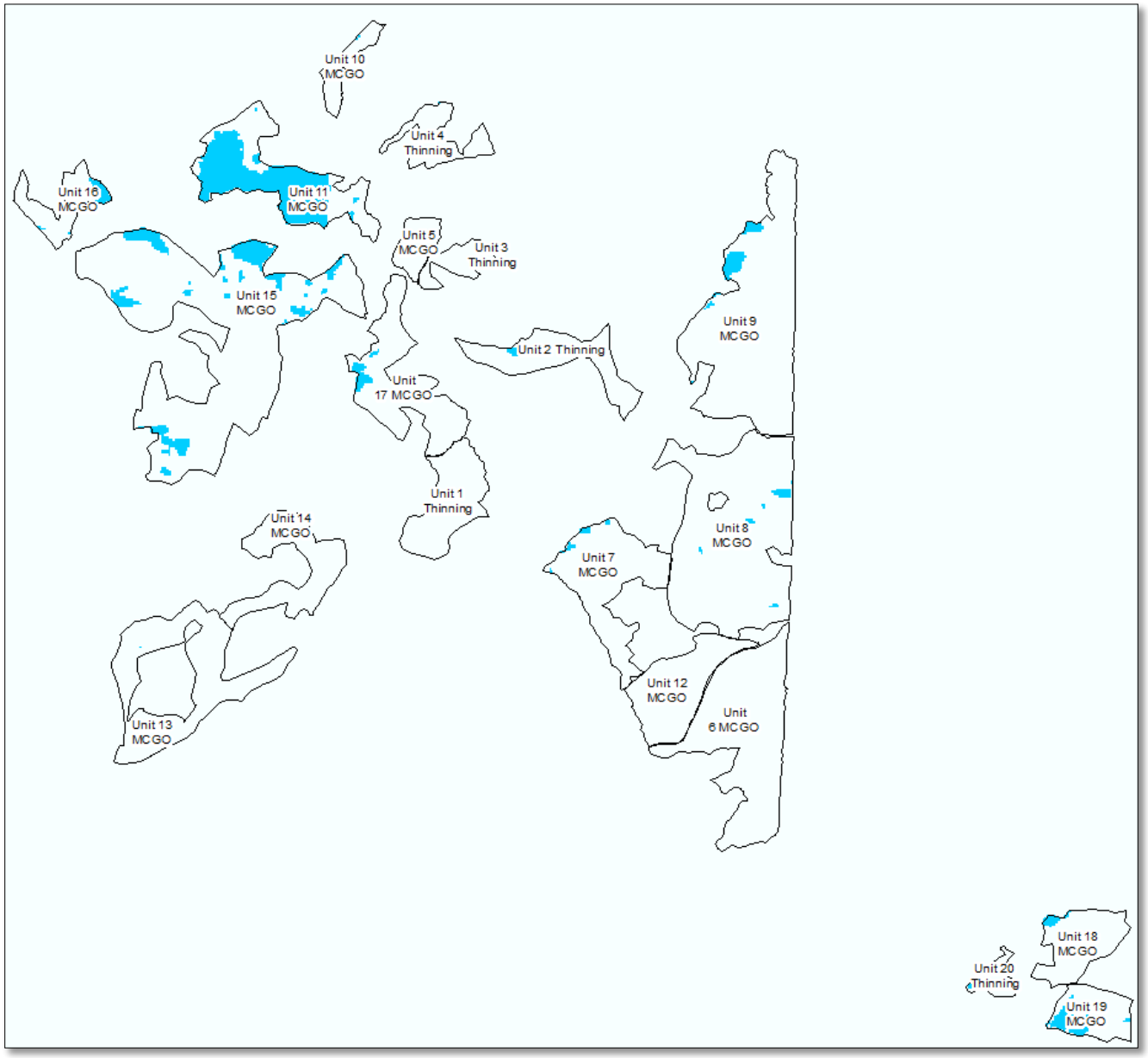

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Basal area ranges

Due to the presence of ponderosa pine and large white fir (>25"DBH), the basal area target ranges presented will not always be met (will be above). Alternatively, there are areas where current BA ranges are already within prescribed targets from (table 2). As such, minimal marking will occur in these areas. In both cases this is expected and acceptable.

Down wood/ fuels-

Within most stands there is abundant down wood from the past mountain pine beetle outbreak and ongoing ABCO dwarf mistletoe/ root/ stem disease interactions.

Non-Saw component 5-9"DBH

Group Openings (GO)

Retain all ponderosa pine, 5 needle pines, Doug-fir

Cut all 0-9" white fir, lodgepole pine and hemlock for removal

All other areas

1) Retain all ponderosa pine, 5 needle pines, Doug-fir
2) Radially thin all 5-9" white fir, lodgepole, hemlock from 25' of any ponderosa pine that obtains a DBH (≥4.5ft tall).
3) Outside of #2 above, thin throughout 5-9" white fir, lodgepole and hemlock to 300 TPA (~12ftX12ft spacing)- spacing can vary up to 50% in order to remove diseased trees and favor a uneven and irregular distribution of trees.
    a. Favor healthy, straight, free of defect, disease free, free to grow trees as retention trees.
    b. After 3a, species preference among lodgepole pine, white fir and hemlock shall be treated equal. However when all things are equal, retain the largest diameter tree to meet stocking.

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Non-saw (PCT) 0-5”DBH

0-5”DBH thinning shall occur within group openings first and secondarily in the remainder of the units. Remove all 0-5”DBH (white fir, lodgepole pine, hemlock) and retain all ponderosa pine in GOs. Outside of GO’s reduce 0-5”DBH to 100 TPA- thinning all 0-5” white fir, lodgepole pine, hemlock within 25’ of any sized ponderosa pine and at a 100TPA rate outside of these areas.

Fuels treatments- Grapple-piling, hand-piling, jack-pot burning. Future fuels treatment goals and objectives will be developed after harvesting and PCT thinning.